

Gabriel Carvalho Silva

 umgabrielcarvalho.me  umgabrielcarvalho@gmail.com  in/umgabrielcarvalho
Spoken Languages: English (Fluent, C2 Level), Portuguese (Native)

PROFESSIONAL SUMMARY

Software Engineer with 5 years of experience developing high-performance solutions. Specialized in Java and Kotlin ecosystems, Microservices, and Legacy Modernization. Proven track record of bridging the gap between complex technical implementation and business requirements, ensuring resilience, security, and operational excellence in remote-first environments.

TECHNICAL SKILLS

Languages: Kotlin, Java, Python, SQL, Shell Scripting, Golang

Architecture & Design: Microservices, Domain-Driven Design (DDD), Event-Driven Architecture, SOLID, Database Evolution, REST API Design

Frameworks & Testing: Spring Boot, Hibernate/JPA, JUnit, Mockito, FastAPI

Infra & Observability: Kafka, MQTT, Docker, Kubernetes, AWS, Grafana, CI/CD Pipelines (e.g. GitHub Actions and Gitlab CI/CD)

Databases: PostgreSQL, MySQL, ScyllaDB, Redis, Flyway

PROFESSIONAL EXPERIENCE

Application Engineer

Foretellix — Remote

Oct 2024 – Present

- Lead Technical Integration:** Orchestrated the design and deployment of custom data integration infrastructures for enterprise clients (Toyota, Nvidia), translating high-level **business requirements** into technical architectural specifications.
- Cloud Infrastructure Architecture:** Designed scalable execution environments on **AWS**, integrating industry-standard platforms (e.g., Carla) with proprietary software to ensure high availability.
- Automation & Tooling:** Developed a custom OpenDRIVE (.xodr) map manipulation API (DOM-like structure) and automation scripts, accelerating map editing workflows and enabling programmatic querying of map elements.
- Cross-Functional Collaboration:** Acted as the primary technical liaison between internal engineering teams and external business stakeholders, conducting impact assessments and aligning technical delivery with client timelines.
- Tech Stack:** ASAM OpenScenario 2, C++, Python, Shell, AWS, React, Kotlin

Software Engineer Intern

iFood - Financial Services Tribe — Remote

Feb 2021 – Jan 2023

- Legacy Modernization:** Led the architectural transformation of **legacy payment microservices** into modern, resilient **Kotlin/Spring Boot** applications, enhancing scalability without disrupting business operations.
- Resilient Architecture & Scale:** Designed **fault-tolerant**, event-driven financial systems using **Kafka**, ensuring data consistency and processing **millions of daily transactions** with low latency.
- Database Evolution:** Managed database evolution strategies using **Flyway** and PostgreSQL/ScyllaDB, ensuring zero-downtime migrations for high-volume datasets.
- Internal Tooling & Standards:** Developed a shared error-handling library (DSL) adopted across the platform to standardize user feedback, conducting code reviews to ensure adoption and maintainability.
- Observability:** Integrated observability tools (Datadog/Grafana) to monitor system health, significantly reducing mean-time-to-resolution (MTTR) for payment failures.
- Tech Stack:** Kotlin, Java, Spring Boot, Kafka, AWS, PostgreSQL, ScyllaDB, Redis, Go (Golang)

Data Engineer Intern

IEA - USP RP — Ribeirão Preto, Brazil

May 2024 – Oct 2024

- Database Architecture Optimization:** Redesigned and normalized (and de-normalized for performance) complex database schemas, optimizing query algorithms to reduce execution time by **99%** (from 5+ minutes to under 2 seconds) through advanced indexing and architectural refactoring.

- **Cost-Optimized Infrastructure:** Provisioned and secured an on-premises Linux server using repurposed hardware, enabling the hosting of critical visualization services and CI/CD pipelines under strict budget constraints.
- Built robust custom dashboards for educational data visualization and insights using Python and R.
- **Tech Stack:** Linux, Python, R, PostgreSQL, Docker, CI/CD

Data Engineer Intern

BRICS - TU Braunschweig — Germany

Aug 2023 – Feb 2024

- **DSL Development & Abstraction:** Engineered a Python-based Domain-Specific Language (DSL) to encapsulate complex domain logic, empowering non-technical researchers to independently execute scalable data analysis tests.
- **Tech Stack:** Python, Pandas

Full Stack Developer Intern

PLRI - TU Braunschweig — Germany

Aug 2023 – Feb 2024

- Developed full-stack application with Python (FastAPI) backend, PostgreSQL database, Vue.js web frontend, and Android app for AI-aided horseshoe image diagnosis.
- **Tech Stack:** Python, PostgreSQL, JavaScript, Vue.js, FastAPI, Android

KEY PROJECTS

Bachelor Thesis - IoT Smart Scale Architecture

USP — Hybrid

Aug 2025 – Dec 2025

- **End-to-End System Design:** Architected a complete IoT solution applying **Domain-Driven Design (DDD)** and **Hexagonal Architecture** principles to ensure decoupling and testability.
- **Implementation:** Developed an **MQTT** broker for real-time device communication, integrated with a **Spring Boot/Kotlin** backend, SQL database, and embedded face recognition using TensorFlow Lite models.
- **Tech Stack:** ESP32, Mosquitto (MQTT), Kotlin, PostgreSQL, Spring Boot, Docker, React, TensorFlow

EDUCATION & LEADERSHIP

Bachelor of Computer Science

Universidade de São Paulo (USP)

Mar 2020 – Dec 2025

Exchange Student

Technische Universität Braunschweig — Germany

Mar 2023 – Mar 2024

Leadership: Octobit Junior - Head of Projects (2024-2025) | Computer Science Week - Head Director (2020-2021)

CERTIFICATIONS & REFERENCES

Certifications: TOEFL iBT Score: 113/120 | High School Programming Competition: 2nd Place

References: Mr. Cristiano Hahn - Senior Software Engineer @ iFood - cristianohahn.contato@gmail.com